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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street

San Francisco, CA 94105-3901

Date: 11/24/99

MEMORANDUM

SUBJECT: Summary of Data Quality

FROM: Carl Brickner, Jr., Environmental Scientist
Quality Assurance Program (QAP), PMD-3

THROUGH: Vance S. Fong, P.E., Manager
Quality Assurance Program (QAP), PMD-3

TO: Katherine Baylor, Hydrogeologist
RCRA Corrective Action Office, WST-5

Three (3) water samples from Simi Valley were sampled on September 23, 1999. The samples were submitted to the USEPA Region IX Laboratory for Perchlorate and Total Dissolved Solids analysis on September 27, 1999. A data package was submitted to the Quality Assurance Program on October 27, 1999 for final review.

An evaluation of the data package was performed by the QA Program with the goal of producing a detailed Data Validation Report based on clearly defined and documented project-specific data quality criteria and/or method quality objectives. The report identifies significant and noticeable data quality issues/deficiencies and indicates whether the data quality meets the intended use.

This evaluation included: verification of the analytical results and associated quality assurance/quality control data for completeness, verification of the chain-of-custody forms (against laboratory reported information, for signatures, for sample condition upon receipt by the laboratory and for sample preservation), verification of holding times, review of QC summaries, review of blanks for contamination, check of reported results against raw data, a random check (percentage determined by the professional judgement of the data evaluator on a project specific basis) of all the various calculations in the data set (eg. verify and recalculate concentrations of standards, check expiration dates of standards from standard preparation logs, verify calibration criteria, QC concentrations, etc.), check of raw data for interference problems or system control problems. These criteria were all evaluated in the context of the project data quality objectives.

The following data quality issue should be noted:

Perchlorate results for samples SIMVL1 and SIMVL2 may have a bias.

If the data user requires further assistance or has any questions concerning this Summary of Data Quality or the attached Data Validation Report, contact Carl Brickner at (415) 744-1536.

Attachments
cc: Brenda Bettencourt, Laboratory Section, PMD-2
Tom Kelly, RCRA Corrective Action Office, WST-5

DATA VALIDATION REPORT

SITE:	Simi Valley
EPA SSI NO.:	N/A
CERCLIS ID NO.:	N/A
CASE/SAS NO.:	R99R10
SDG NOs.:	99270A
LABORATORY:	EPA Region 9 Lab, Richmond
ANALYSIS:	Perchlorate and Total Dissolved Solids
REVIEWER:	Carl Brickner, Jr., QAP
DATE:	November 24, 1999

I. Case Summary

SAMPLE INFORMATION:

Sample Numbers:	SIMVL1, SIMVL2, and SIMVL3.
Matrix:	Water
Analysis:	Perchlorate and Total Dissolved Solids
Collection Date:	September 23, 1999
Sample Receipt Date:	September 27, 1999
Analysis Dates:	September 27 and 30, 1999
Field Blanks (FB):	SIMVL3.
Equipment Blanks (EB):	None.
Background Sample (BG):	None.
Field Duplicates (D1):	SIMVL1 and SIMVL2.

ANALYSIS DATES:

Analysis	Analysis Date
Perchlorate by IC	September 30, 1999
Total Dissolved Solids	September 27, 1999

ATTACHMENTS:

Table 1A: Analytical Results with Qualifications.
Table 1B: Data Qualifiers.

TPO ACTION:

SAMPLING ISSUES: None.
OTHER: None.

TPO ATTENTION:

SAMPLING ISSUES: None.
OTHER: None.

ADDITIONAL COMMENTS:

The analytical results with qualifications are listed in Table 1A. This report was prepared in accordance with EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", February 1994, and referenced State of California Department of Health Services document "The Determination of Perchlorate in Water by Ion Chromatography, Rev. No.0", 1997.

II. Validation Summary

	Acceptable	Comment
Calibration	[Yes]	[ ]
a. Quality Control Sample		
b. Instrument Performance Check Solution		
c. Calibration Blank		
d. Quantitation Limit Standard		
Sample Quantitation	[No]	[A,B]
Laboratory Reagent Blank	[Yes]	[ ]
Laboratory Fortified Blank	[Yes]	[ ]
Laboratory Fortified Sample Matrix	[Yes]	[ ]
Laboratory Duplicate Sample	[Yes]	[ ]
Sample Preservation and Holding Times	[Yes]	[C]
Field QC Samples	[Yes]	[ ]
a. Field Duplicate Sample		
b. Field/Equipment Blank		

N/A - Not Applicable

III. Validity and Comments

A. Due to method limitations the following results are estimated (J) (see Table 1A):

- Perchlorate in samples SIMVL1 and SIMVL2.

As a result of method limitations Perchlorate does not resolve well in environmental samples with high total dissolved solids, chloride, or sulfate and tends to coelute with a large interferent peak. In the above samples such interferent peaks were noted. Therefore in the reviewer's professional opinion Perchlorate at project specified levels of interest may be biased.

B. An instrument reading of 2.54 ug/L was obtained for sample SIMVL2 in the raw data.

The Region IX Laboratory follows an "even rounding" rule which requires that if the number following the last significant figure is equal to 5, the last significant figure is rounded to the nearest even number. The result of 2.54 ug/L was rounded down to 2 ug/L.

Region IX Laboratory reporting rules state that any values less than ½ Quantitation Limit (QL) are reported as non-detect at the QL. Therefore sample SIMVL2 was reported by the Regional Laboratory as non-detect (U) at the QL of 5 ug/L.

Under other equally valid rounding and reporting schemes the result for SIMVL2 could have been reported as detected at 3 ug/L. However, any sample result less than the QL of 5 ug/L is considered qualitatively acceptable, but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection. Therefore a result of 3 ug/L though a detect would be considered an estimated (J) value and would be highly questionable.

It should also be noted that there is a method accepted variability of at least 30% for values within the linear range. So, any sample results at or near the QL are expected at the minimum to have a method accepted variability of at least 30%. Any values less than the QL are expected to have a significantly greater degree of unquantifiable variability that should be kept in mind when using data that are less than the QL of 5 ug/L.

C. The samples were received at the laboratory at 17° C. Due to the relative stability of perchlorate, in the reviewer's professional opinion there was no significant effect upon the samples.

ANALYTICAL RESULTS
TABLE 1A

VALIDATED DATA

Case No.: R99R10 (SDG: 99270A)
Site: Simi Valley
Lab.: Region 9, Richmond
Reviewer: Carl Brickner, Jr., EPA/QAP
Date: November 24, 1999

Analysis Type: Perchlorate and Total Dissolved Solids

Sample No.	N/A				N/A				N/A				N/A				Quantitation													
Sample I.D.	SIMVL1		D1		SIMVL2		D1		SIMVL3		FB		Reagent Blank				Limit													
Lab Sample I.D.	AB24209				AB24210				AB24211				N/A				N/A													
Date of Collection	09/23/99				09/23/99				09/23/99				N/A				N/A													
Analyte	Result		Val	Com	Result		Val	Com	Result		Val	Com	Result		Val	Com	Result													
Perchlorate (in ug/L)	5	U	J	A	5	U	J	AB	5	U			5	U			5													
Total Dissolved Solids (in mg/L)	1300				1300				20	U			20	U			20													

Val-Validity Refer to Data Qualifiers in Table 1B
Com-Comments Refer to the Corresponding Section in the Narrative for each letter
QL-Quantitation Limit

D1, D2, etc -Field Duplicate Pairs
FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample
N/A-Not Applicable
N/R-Not Required.

TABLE 1B
DATA QUALIFIERS

NO QUALIFIERS indicate that the data are acceptable both qualitatively and quantitatively.

U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

TELEPHONE RECORD LOG

Date of Call:
Laboratory Name:

Lab Contact:
Region:
Region Contact:

Call Initiated By: ___ Laboratory ___ Region

In reference to data for the following sample delivery group(s):

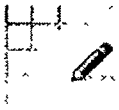
See attached email correspondence.

Summary of Questions/Issues Discussed:

Summary of Resolution:

_____ _____
Signature Date

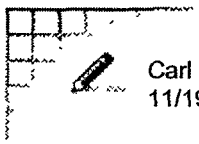
Distribution: (1) Region Lab Copy



Richard Bauer
11/22/99 12:46 PM

To: Carl Brickner/R9/USEPA/US@EPA
cc: Ken Hendrix/R9/USEPA/US@EPA
Fax to:
Subject: Re: Simi Valley - R99R10 99270A Perchlorate and TDS

The decision was made in a meeting and transmiited verbally to the staff. No formal written policy was produced (of course the previous policy was not wriutten either). The policy is as written below. SOPs will reflect the change as they are routinely updated. I'm sure Ken can write a one paragraph memo re-stating this for the record.
Carl Brickner



Carl Brickner
11/19/99 08:37 AM

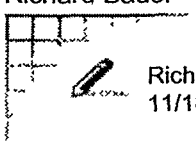
To: Richard Bauer/R9/USEPA/US@EPA, Ken Hendrix/R9/USEPA/US@EPA
cc: Mathew Plate@EPA, Dawn Richmond@EPA, Richard Freitas/R9/USEPA/US@EPA
Subject: Re: Simi Valley - R99R10 99270A Perchlorate and TDS

Can you send over a copy of the lab-wide policy so we can take a look at it and possibly provide comments? Also, it would be good for us to just have a copy for our records.

Thanks for recalculating the Salton Sea data. I'll look for it in the mail.

Carl

Richard Bauer



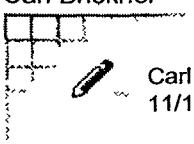
Richard Bauer
11/18/99 06:04 PM

To: Carl Brickner/R9/USEPA/US@EPA
cc: Ken Hendrix/R9/USEPA/US@EPA
Fax to:
Subject: Re: Simi Valley - R99R10 99270A Perchlorate and TDS

Yes. As you may recall from previous discussions about VOC MS recovery calculations, we have been using raw sample results for spike recovery calculations in most of the lab areas. In most cases the difference between the calculated spike recovery using a raw result below the QL or using "0" isn't significant because the spiking level is so much higher than the QL, but we have generally followed the rule not to round or truncate intermediate values used in a calculation. The low level perchlorate spikes brought to our attention that the inorganics group was still following a CLP Form 5 convention of assigning a "0" value to sample results below 1/2 the QL. This was inconsistent with what the rest of the lab was doing and produced misleading recovery values. We decided to make it lab-wide policy to use raw sample results in MS %recovery calculations.

By the way, I had Lockheed re-calculate the % recovery results using the above calculation method on the small perchlorate study we did with the Salton Sea sample diluted to various TDS levels, and I have been meaning to make a copy to send to you and Matt. I'll try to do that tomorrow.

Carl Brickner



Carl Brickner
11/18/99 04:32 PM

To: Ken Hendrix/R9/USEPA/US@EPA, Richard Bauer@EPA
cc:
Subject: Simi Valley - R99R10 99270A Perchlorate and TDS

On the QC Summary Form (page 6) the LFM recoveries are calculated differently than they have been in the past. Usually the Lab treats any sample results that are less than 1/2 QL as 0 for the purposes of LFM % recovery calculations. However in this package, values less than 1/2 QL were not treated as 0 in the calculations.

Is this how you plan on doing this for the rest of the project?

Carl